MSE PSE-SW3G

3 Port PoE Switch & Extender

(Repeat Ethernet and PoE)

USER'S MANUAL

MSTRONIC CO., LTD.

1. General Information

The PoE (Power Over Ethernet) Switch family provide two 10M/100M/1000M TX ports with PoE PSE function plus one 10M/100M/1000M TX up-link port with PoE PD function. It allow powered from PoE power souring equipment (PSE) and deliver power to PoE powered device (PD), which is compliant with IEEE802.3af and IEEE802.3at standard to receiver and deliver both of Ethernet data and DC power through the traditional UTP or STP cable. The PoE Switch can extend Ethernet data and DC power up to 200 meters. This manual will help you install and maintain the PoE switch. Installation of the PoE switch is very easy and you will begin to operate as soon as you are powered up.

2. Hardware Description

*LED Indicator

There are 8 LEDs on the PoE switch to indicate the status of power and signal. The following section describes the functions of each LED indicator.

Front panel detail

*POWER LED

LED	STATUS	Description
Power	Green	LED ON when power input (DC IN on rear panel or Port UPLINK on front panel) has valid power supplied.
	Red	The indicator only been used on PSE-SW3G11CN, LED ON when the following warning condition happened. *Power input under voltage (Vin<10V) *Power input over voltage (Vin>59V) *PoE over current (2A/per port) the indicator is unused on PSE-SW3G44DN
	Off	No power supplied.

*SWITCH LED (the right indicator on RJ45)

LED	STATUS	Description
P1~P3 Link/Act	Green	A network device is detected (1000Mbps), but no communication activity is detected.
	Green Blinking	This port is transmitting to, or receiving package from another device at 1000Mbps.
	Yellow	A network device is detected (10Mbps or 100Mbps), but no communication activity is detected.
	Yellow Blinking	This port is transmitting to, or receiving package from another device at 10Mbps or 100Mbps.
	Off	No device is detected.

*PoE LED (the left indicator on RJ45)

P1~P2 PoE	Yellow	A valid Powered Device (PD) is detected and delivering power on this port.
	Off	No PD is detected on this port.
P3 PoE	Yellow	Powered via all 4 data pairs.
	Yellow Blanking	Powered via 2 data pairs. (1,2,3,6 or 4,5,7,8 are all acceptable).
	Off	No power is detected on this port.

*Power wiring

The PoE switch family includes 2 models, be used for 2 different ranges of input voltage as,

full range voltage (10 to 57VDC) (P/N: PSE-SW3G11CN)
48VDC typical (40 to 57VDC) (P/N: PSE-SW3G44DN)
All of the PoE switches allow powered by another PoE source (42.5~57VDC) on port 3 (UPLINK).

For PoE operation, make sure your power supply may offer at least 40W for 2x 802.3af PoE port, or 80W for 2x 802.3at PoE port.

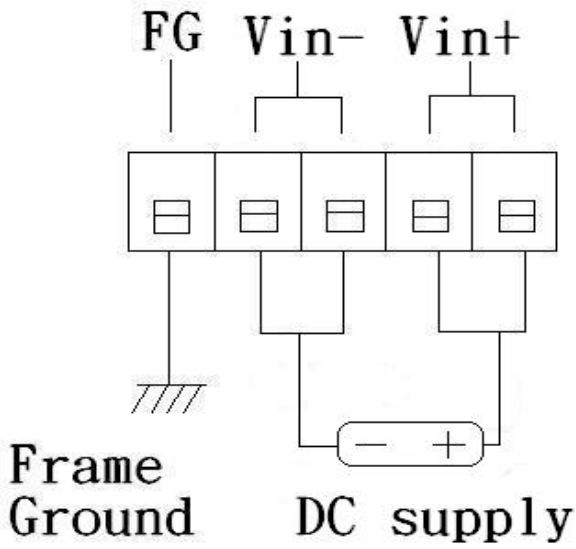
If powered on rear terminal, please make sure the input current don't over 10A, if powered on port 3, make sure the input current don't over 2Amp.

The port 1&2 will deliver DC power over the Ethernet cable, the connection as:
* Data pair A on line 1 and 2
* Data pair B on line 3 and 6
* Data pair C plus V+ on line 4 and 5
* Data pair D plus V- on line 7 and 8

The port 3 may get DC power over the Ethernet cable, the connection as:

* Data pair A plus V+ /V- on line 1 and 2
* Data pair B plus V-/V+ on line 3 and 6
* Data pair C plus V+/V- on line 4 and 5
* Data pair D plus V-/V+ on line 7 and 8

The terminal block on rear panel should be wiring as:



*For PSE-SW3G44DN

The input voltage must be in the range of 40 to 57VDC if running for 802.3af operation.

The input voltage must be in the range of 50 to 57VDC if running for 802.3at operation.

If the PSE-SW3G44DN is not powered in above designated input voltage, it will only functioning as an Ethernet switch without PoE output.

Model	Input Voltage (REAR)	Input Voltage (Port 3)	Output voltage	802.3af/at	Isolated
PSE-SW3G11CN	10-57VDC	No input	10-57VDC (As input voltage) (non-regulated)	No	No
	No input	42.5-57VDC	42.5-57VDC (non-regulated)	No	No
	10-57VDC	42.5-57VDC	Higher voltage output (REAR or Port 3)	No	No
PSE-SW3G44DN	40-57VDC	No input	40-57VDC (non-regulated)	Yes	No
	No input	42.5-57VDC	42.5-57VDC (non-regulated)	Yes	No
	40-57VDC	42.5-57VDC	Higher voltage output (REAR or Port 3)	Yes	No

You could use the PSE-SW3G series with our adaptor products as the below: (OPTION)

	MS-A150-18-1	MS-A150-24-1	MS-A150-48-1
Maximum output	18VDC/7.5A	24VDC/6.25A	48VDC/3.125A
Related model	PSE-SW3G11CN	PSE-SW3G11CN	PSE-SW3G11CN PSE-SW3G44DN

*Ethernet Port Wiring

The PoE switch family supports one RJ-45 uplink (port 3 with PoE PD) and two RJ-45 ports (port 1&2 with PoE PSE) with automatic MDI/MDI-X crossover, auto-sense the speed and duplex for 10Base-T, 100Base-TX or 1000Base-T connection. Automatic MDI/MDI-X crossover allows you to connect to other devices (switches, hubs, or workstations etc.), without regard to using straight-through or crossover cabling.

Port 1 & 2 provides Power over Ethernet function that delivers DC power through the data pairs C & D (pair 4,5 and pair7,8) to the PD. Port 3 provides Power Device (PD) function that receive power from 4 pairs or 2 pairs Ethernet cable.

The following tables describe the wiring diagram of straight-through and crossover cabling. That crossover cables simply cross-connect the transmit lines at each end to the receive lines at the opposite end.

Straight-through Cabling	
Pin 1	Pin 1
Pin 2	Pin 2
Pin 3	Pin 3
Pin 6	Pin 6
Pin 4	Pin 4
Pin 5	Pin 5
Pin 7	Pin 7
Pin 8	Pin 8

Cross-over Cabling	
Pin 1	Pin 3
Pin 2	Pin 6
Pin 3	Pin 1
Pin 6	Pin 2
Pin 4	Pin 7
Pin 5	Pin 8
Pin 7	Pin 4
Pin 8	Pin 8

Connect an Ethernet cable into any switch port and connect the other side to your attached device. The Link/Act LED (green or yellow) will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator.
If a port LED is off, go back and check for connectivity problems between that port and the network device connected.

The maximum cable length for 10/100/1000BaseT with Cat 5 twisted pair cables is typically 100m (328 ft.).

*PD Port Wiring

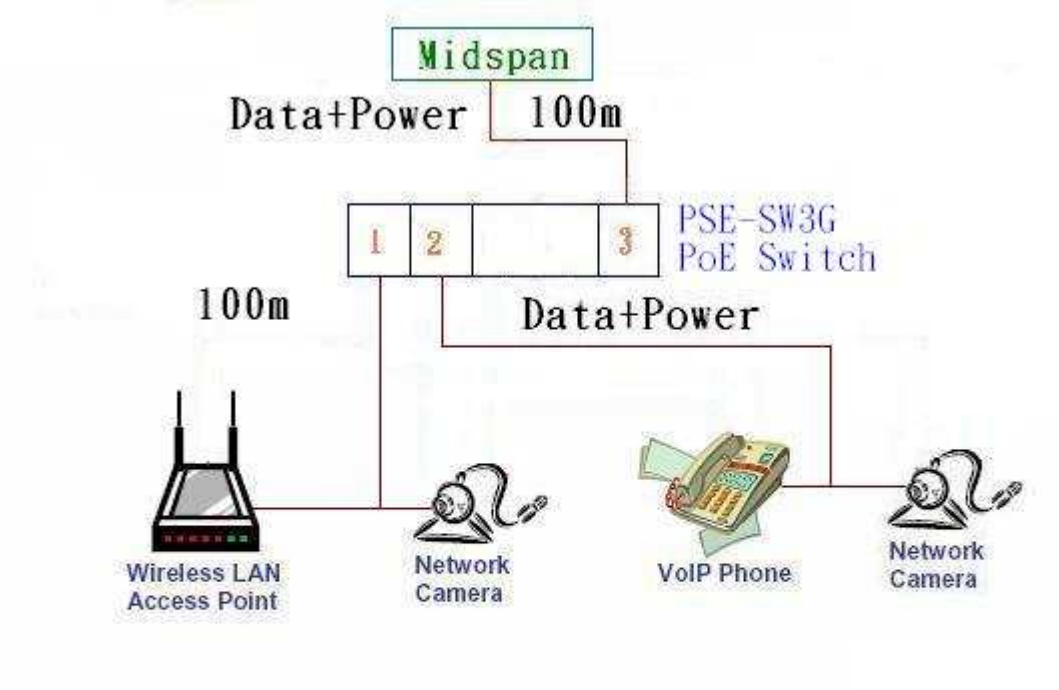
Port 1 & 2 provide PoE inject function with maximum 35W ability to power up the powered device use the straight-through or cross-over Ethernet cable.
The PoE switch follows the IEEE802.3af Alternative B mode connector assignment. The following table shows pin assignment of alternative A and B for the Power Source Equipment.

Conductor	Alternative A (MDI-X)	Alternative A (MDI)	Alternative B (All)
1	Negative Vport	Positive Vport	
2	Negative Vport	Positive Vport	
3	Positive Vport	Negative port	
4			Positive Vport
5			Positive Vport
6	Positive Vport	NegativenVport	
7			Negative Vport
8			Negative Vport

Be sure the twisted pair cable is bound with the standard RJ-45 pin, especially the pin 4, 5, 7 and 8. If the RJ-45 is bound with the wrong pin number, PoE switch will not recognize the PD and won't deliver DC power to PD. The yellow PoE LED will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator. If a port LED is off, go back and check for connectivity problems between that port and the network device connected.

*Network Application

The PoE Switch can receive power from PoE midspan and provide power to the PD which follows the IEEE 802.3af/at standard in the network. The PoE Switch can be installed in a more appropriate position for better performance to extend Ethernet to 200 meters. The following figure is an example of a network application for PoE Switch.



3. Model Information

Model	Input Voltage (REAR)	Input Voltage (Port 3)	Output voltage	802.3af/at	Isolated
PSE-SW3G11CN	10-57VDC	42.5-57VDC	10-57VDC (non-regulated)	No	No
PSE-SW3G44DN	40-57VDC	42.5-57VDC	40-57VDC (non-regulated)	Yes	No

*Suffix L for DIN RAIL Mounted

AC/DC Adapter (Option)

	MS-A150-18-1	MS-A150-24-1	MS-A150-48-1
Maximum output	18VDC/7.5A	24VDC/6.25A	48VDC/3.125A
Related model	PSE-SW3G11CN	PSE-SW3G11CN	PSE-SW3G11CN PSE-SW3G44DN

4. Technical Specifications

Standards	IEEE802.3/IEEE802.3u standards/IEEE802.3ab (10 base-T/100base-TX/1000base-T)
Ports	3 ports with PoE (2 PSE & 1 PD), support auto-crossover & auto-polarity
Transmission speed	1000Mbps (1000base-T).100 Mbps (100base-TX), 10 Mbps(10base-T) Auto-negotiation
Switch technology	store-and-forward
Protocols	CSMA/CD
Flow control	IEEE802.3x (full-duplex), back pressure (half-duplex)
Data transmission rate	1488000pps for1000base-T, 148800pps for 100base-T, 14880pps for 10base-T
Address table	1K MAC address table, self-learning
Connect	RJ-45
PoE port	Port 1&2, PSE auto power management Pin assignment: data pair A(1,2),data pair B(3,6),data pair C plus V+(4,5),data pair D plus V-(7,8) Port 3, 4 pairs PD
Maximum PoE power	Port 1&2: IEEE802.3af – 16.8W IEEE802.3at – 35W Current limited – 2A Port 3: 90W (802.3at 2 event classification)
PSE disconnect mode	DC disconnect

PoE auto detection	IEEE802.3af & IEEE802.3at (2 event classification signaling)
PoE protection	Over-temperature, over-current, over/under voltage
LEDs	*Link/Activity (Green ON/ Green Blinking @1000Mbps, Yellow/Yellow Blinking @10M/100Mbps) *PoE (Yellow) port 1&2 ON - PD detect Port 3 ON – 4 pair power, Blinking-2 pair power *POWER Green-normal, Red-alarm
Power input	Port 3 from network switch or midspan, or option DC power supply
Power consumption	2.5W without PD loading
Power efficiency	85% at full load (@48V typical)
Operating temperature	-20℃~ +70℃
Operation humidity	90% relative humidity, non-condensing
Storage temperature	-40℃~+85℃
Dimension	40mm(H)x116mm(W)x90mm(D) available for DIN RAIL Mounted